

# GFK Consulting

Land Development Services

EXHIBIT NO. 123.

May 17, 2012

City of Sammamish Planning Commission and Staff,

My colleagues and I have been contacted by several property owners who own land along the east side of Lake Sammamish within the City of Sammamish's Erosion Hazard Overlay. We have been asked to evaluate the history of the Erosion Hazard Overlay, to assess the need for the existing EHO regulations based on Best Available Science, and to make recommendations to you during your evaluation of the City's Critical Areas regulations as it relates to section 21A.50.225. This letter and attachments will serve as our initial assessment. We hope to continue our participation and provide further comments as additional information is provided by your consultant and staff on this issue.

The City's Erosion Hazard Overlay imposes severe development restrictions on land along much of the east side of Lake Sammamish. It establishes a "no-disturbance area" where all development is basically precluded. SMC 21A.50.225(3)(b). The "no-disturbance area" includes significant portions of property that would otherwise be developable. Areas with slopes greater than 15% with Alderwood and Kitsap soils (AkF), the predominant soil type mapped in this area, constitute the no-disturbance zone. No other jurisdictions have imposed such overly restrictive regulations on lands that are not considered steep slopes.

The Erosion Hazard Overlay also restricts development outside of the "no-disturbance area." 25% of the land is required to remain undisturbed and set aside as open space if a proposed subdivision cannot infiltrate 100% of its runoff up to the 100-year peak flow. SMC 21A.50.225(3)(e). No more than 35 percent of the gross site area can be covered by impervious surfaces. SMC 21A.50.225(3)(f).

These development regulations were initially crafted and imposed by King County in 1997. The regulations were subsequently adopted when the City incorporated in 1999. The genesis of the Erosion Hazard Overlay is documented in King County's East Lake Sammamish Basin and Nonpoint Action Plan dated December 1994. That Plan was drafted nearly 20 years ago, when King County was first trying to address impacts from development in unincorporated areas around Lake Sammamish. It was drafted at a time when stormwater management and erosion control requirements were inadequate to address the pollutant loading of Lake Sammamish. Additionally, the management practices were poorly implemented and rarely enforced.

In 2003 the Washington Department of Ecology (DOE) implemented Phase II of the municipal National Pollution Discharge Elimination System (NPDES) permit

issued in 2001. DOE's general construction NPDES permit significantly enhanced the requirements for reducing erosion and stormwater runoff during construction. It imposed monitoring and reporting requirements and established a mandate for certified erosion control specialists to monitor and manage erosion at construction sites. These regulations allowed for more effective enforcement of erosion control practices in the Puget Sound Region. Since 2003, the DOE has issued two updated versions (with another update coming out this year) of its Stormwater Management Manual with further enhancement of its erosion control requirements. These regulatory requirements have dramatically improved construction management techniques and erosion control practices. The 2011 Construction Stormwater General Permit has strict discharge requirements for turbidity and pH that will adequately protect Lake Sammamish. This has allowed construction activities on landforms in other areas of the Puget Sound basin with similar conditions to those found on the east side of Lake Sammamish to occur while maintaining water quality standards through acceptable stormwater discharges.

Because of the advancements in the erosion control regulation and the response to these regulations from the construction industry, the prescriptive nature of the current Erosion Hazard Overlay regulations is no longer necessary. There is no longer any justification to preclude development in a "no disturbance area" where slopes are less than 40%. Moreover, with appropriate stormwater management, there is no longer a need to limit development density beyond ordinary zoning limitations.

We also have reason to believe that the restrictive nature of the Erosion Hazard Overlay and its apparent overlap with more current DOE guidelines may create regulatory and property rights issues for the City.

We suggest that the Erosion Hazard Overlay regulations be revised to eliminate the "no disturbance" designation and the requirement to leave 25% of the land undisturbed if 100% infiltration cannot be achieved. In its place, the regulations should include the following provisions:


1. All projects proposed within the EHO should be required to comply with the most current DOE Stormwater Management Manual.
2. All applicants for a project proposed within the EHO should be required to attend a special pre-application conference prior to submitting any subdivision and/or grading permit application. The Owner/Developer and the Developer's erosion control professionals should be required to attend the conference and present to the City staff a summary of the site conditions, the Developer's proposed site construction techniques and the measures proposed to be taken to adequately manage stormwater and control erosion.

3. All applications for development with the EHO should be required to submit a special erosion control management plan to the City, based upon the input received from staff at the pre-application conference. In addition to demonstrating compliance with the DOE Stormwater Management Manual, the plan should select from a menu of options to ensure best management practices, which might consist of:
- A limited construction season during dry weather months
  - Construction phasing requirements
  - Lined or underground conveyances installed on slopes prior to mass clearing and grading.
  - Installation of adequate / permanent water quality treatment and detention facilities prior to mass clearing and grading.
  - Provisions to treat or remove turbid water from site or add additional onsite capacity if existing treatment / storage facilities are pushed beyond capacity.
  - Water quality reporting to City staff in addition to DOE regulators.

The current DOE Stormwater Management Manual represents the application of Best Available Science to erosion control practices and techniques. We believe that these regulations and the suggestions outlined above would allow areas within the EHO to be developed responsibly and without negative impacts to Lake Sammamish.

We ask that you consider these revisions to the current code.

Attached is our contact information. Please call if you have any questions.



Robert Edwards, PE, CPESC, CPSWQ  
Principal Engineer, E3RA, Inc.



Greg Krabbe, PE  
President, GFK Consulting Inc.

Cc Brent Carson, JD, VanNess Feldman GordonDerr

## **Robert C. Edwards, PE**

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206-226-5777

### **Education**

BS/Civil Engineering/University of Washington  
Graduate Studies/Engineering/University of Washington

### **Professional Registrations**

Civil Engineer/1988/Washington - #25368  
Civil Engineer/1996/California - #C55512  
Civil Engineer/2007/Idaho - #12703  
Certified Professional in Erosion and Sediment Control/2001/#2330 (Instructor 2008)  
Certified Professional in Storm Water Quality/2006/#0253 (Instructor 2009)

### **Professional Affiliations**

American Society of Civil Engineers  
Washington Airport Managers Association  
Washington Hydrologic Society  
Toastmasters International

### **Professional Background**

Entered the profession in 1979, joined E3RA in 2002. Mr. Edwards has been involved in civil engineering design and consulting for nearly 30-years. He presently serves as the civil engineering manager at E3RA, Inc. His responsibilities include management of Engineers, engineers in training, CAD technicians, and field personnel.

Mr. Edwards has significant design experience in grading projects. The projects range in size from 50 cubic yards to 14.5 million cubic yards. His design elements include matching grades, drivability, sight-distance, earthworks balance, and geotechnical concerns. Mr. Edwards has extensive experience in utilities design and construction. He has designed water main extensions and looping of water mains. He has designed extensions of sanitary sewer mains and side sewers. He has designed temporary shoring around utilities and resolved utilities conflicts.

Mr. Edwards has extensive experience in providing hydrologic modeling and hydraulic design. He is familiar with the following hydrologic models: Rational method, Santa Barbara Urban Hydrograph (SBUH), Soil Conservation Services TR-20 and TR-55, U.S. Army Corps of Engineers HEC-1, King County Runoff Time Series (KCRTS), and the Department of Ecology Western Washington Hydrologic Model (WWHM). He is familiar with the design of conveyance facilities, including ditches/swales, piping systems, and pumping systems. He has familiarity with various hydraulic design tools including Waterworks and the Storm Water Management Model (SWMM). He has designed and operated computerized data logging of stream and pond staging. This data was then used to calibrate the hydrologic and hydraulic models. He is highly familiar with the design and retrofit of retention/detention facilities, including detention ponds, detention vaults, detention tanks, infiltration ponds, infiltration vaults and infiltration trenches.

He has much experience in the design of water quality measures, including wet and dry ponds, settling basins, bio-filtration swales, and filter strips. He has extensive experience in the design of Erosion and Sediment Control (ESC) measures. He has acquired the title of Certified Professional in Erosion and Sediment Control (CPESC) and is a CPESC instructor. He has significant experience in the design of ESC BMPs, including sediment ponds, sediment traps, check dams, filter fences, construction entrances, filtration swales, surface treatments, slope terracing, specialized seeding, stormwater pump stations, electrical flocculation, and chemical stormwater treatment through coagulation and flocculation.

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Experience Prior to E3RA:

Senior Engineer - HNTB – 6/97 – 7/03

- Designed large civil works projects (\$100,000,000+)
- Performed Hydrologic and Hydraulic Modeling
- Developed new and experimental BMPs for erosion and sediment control
- Federal, State and local permits (404/401, SEPA/NEPA, DNR, Shorelines, Grading, HPA)
- Wrote and reviewed project specifications
- Supervised engineers and clerical staff

Project Manager - TRA/Black & Veatch - 4/96 to 6/97

- Project manager for Personal Communication Services (PCS)
- Supervised the development of eighteen PCS sites
- Performed civil engineering functions (paving, grading, drainage, and utilities design)
- Supervised project electrical engineers and drafters
- Served as Engineer of Record
- Obtained permits from multiple jurisdictions

Project Manager - D'Amato Conversano, Incorporated - 9/95 to 4/96

- Provided site development civil engineering for multi-family and commercial projects including potable water, fire water, sanitary sewer, storm sewer, paving, grading and drainage
- Hydrologic modeling – Rational and SBUH
- Hydraulic design – conveyance and detention facilities

Senior Engineer - King County Surface Water Management - 1/93 - 10/95

- Designed and Retrofitted over 100 Regional Storm Facilities
- Designed River and Flood Control Projects
- Provided construction engineering support
- Obtained Federal, State and local permits (404/401, SEPA/NEPA, DNR, Shorelines, Grading)
- Wrote and reviewed project specifications
- Supervised engineers and clerical staff

Civil Engineer - TRA Architecture, Engineering, Planning and Interiors – 3/90 – 12/92

- Served as civil design engineer for airport and site development projects
- Designed the utilities design for potable water, fire water, sanitary sewer, storm sewer, paving, grading and drainage
- Performed hydrologic modeling – Rational, SBUH, TR-20
- Performed hydraulic design – conveyance and detention facilities

Civil Engineer - R.W. Beck and Associates – 7/79 – 7/89

- Performed surface water studies for various urban drainage basins, King County
  - Analyzed and investigated sanitary sewer infiltration and inflow
  - Collected real-time data for sanitary sewer lift stations for model calibration
  - Collected real-time stream gauging for hydrologic model calibration
  - Performed hydro-electric modeling for low head dam feasibility studies
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# Environmentally Critical Areas COMMENT FORM

Name:	LINDA EASTLICK
Address/Email:	lmeastlick@yahoo.com
Topic	EXHIBIT NO. <u>124</u> Consultant BAS Review
Comment:	<p>Restatement of Public Comment @ Joint Council/PC <u>mtg.</u></p> <p>I am not seeing, <del>what I</del> <sup>and</sup> hearing what I expected to see and hear from the consultants in regards to their BAS Review.</p> <p>I recall, during the panel interview process, an emphasis on articulating the criteria studied in the scientific studies <del>and mapping that</del>, then explaining how the conclusions from the studies reviewed inform the recommendations given.</p> <p>Simply stating "the science supports" buffers" is not useful information upon which to base policy decisions. Telling us <u>what</u> was studied, what the <del>conet</del> results were, and how the consultants took that data &amp; mapped it to their <sup>recommendations</sup> <del>consultant</del> would be useful.</p>
Do you have any suggestions for improvements to the meetings?	

Date: 5/17/2012